RETAIL BUSINESS PERFORMANCE & PROFITABILITY ANALYSIS

Abstract

This project analyzes transactional retail data to evaluate business performance, identify profit-draining categories and products, optimize inventory turnover, and understand seasonal sales behavior. The workflow follows Python for data preparation, SQL for analytical querying, and Tableau for interactive visualization, enabling data-driven business decisions.

Introduction

Retail organizations generate large volumes of transactional data. Without structured analysis, inefficiencies such as slow-moving inventory, loss-making products, and seasonal demand fluctuations can negatively impact profitability. This project transforms raw Superstore sales data into actionable insights using Python, SQL, and Tableau.

Tools Used

- Python (Pandas, NumPy)
- SQL (SQLite/MySQL)
- Tableau Public
- Dataset: Superstore_Final.csv

Steps Involved in Building the Project

1. Cleaned and prepared data using Python (handling encoding, dates, and missing values).
2. Performed SQL analysis to calculate sales, profit, and identify loss-making categories.
3. Created KPIs in Tableau for Sales, Profit, Margin, and Orders.
4. Conducted profitability analysis at category, sub-category, and product levels.
5. Used sales quantity as a proxy to classify inventory into Slow, Medium, and Fast Moving.
6. Analyzed monthly sales trends and seasonal demand patterns.
7. Designed an interactive dashboard with business-friendly filters.

Key Insights

- Furniture category shows comparatively lower profitability than Technology and Office Supplies.
- Certain sub-categories such as Tables and Bookcases consistently generate losses.
- A majority of products fall under the Slow-Moving inventory segment, indicating overstock risk.
- Several slow-moving products are also loss-making, suggesting the need for discontinuation or discount strategies.
- Sales and profit peak during year-end months, highlighting strong seasonal demand.

Conclusion

This project demonstrates how a structured analytics workflow can uncover actionable business insights. By combining Python, SQL, and Tableau, the analysis identifies profitability gaps, inventory inefficiencies, and seasonal trends, enabling stakeholders to optimize inventory turnover and improve overall retail performance.